NORTH CENTRAL FOREST EXPERIMENT STATION

Research Note NC-290

1992 FOLWELL AVE. ST. PAUL, MN 55108 FOREST SERVICE-U.S.D.A.

1982

TIMBER VOLUME IN MICHIGAN, 1980

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ABSTRACT.—The fourth inventory of Michigan's forest resources shows a 27 percent increase in growing-stock volume between 1966 and 1980, from 15.0 to 19.1 billion cubic feet.

KEY WORDS: Timber resource, statistics, growing stock, sawtimber.

Volume of growing stock[1] on commercial forest land in Michigan increased from 15.0 billion cubic feet in 1966 to 19.1 billion cubic feet in 1980, a 27 percent gain:

Growing stock	Survey year [2]1966	1980
	(Million cubic feet)	
Softwoods	4,001	5,356
Hardwoods	11,049	13,748
Total	15,050	19,104

Softwood growing stock volume increased by 34 percent while hardwood volume grew by 24 percent.

These volume gains were made despite a 7.3 percent decline in commercial forest area. These increased volumes reflect an increase in average growing-stock volume per acre from 798 cubic feet per acre in 1966 to 1,092 cubic feet per acre in 1980.

Growing stock volume did not increase uniformly throughout the State (table 1). The largest total volume and greatest percent increase were in the Northern Lower Peninsula Unit, and the smallest percent gains were in the Eastern Upper Peninsula (fig. 1).

The hard maple species group, primarily sugar maple, is the most abundant species group in Michigan and accounts for more than 14 percent of the growing-stock volume. Its volume increased by 20 percent between surveys. Aspen, the second most plentiful species group in the State, makes up another 14 percent. The soft maple group, primarily red maple, is the third most abundant species in Michigan and showed a dramatic increase of 78 percent in growing-stock volume between inventories. As shown in the following tabulation other prominent species include the oak and pine groups:

Species group	Growing stock (Million cubic feet)
Hard maple	2,749
Aspen	2,617
Soft maple	2,253
Oak	2,019
Pine	1,886
Other hardwoods	4,110
Other softwoods	3,470
Total	19,104

[1]*Net volume in cubic feet of growing stock trees 5 inches d.b.h. and larger from the stump to a variable 4-inch top diameter.*

[2]*Figures have been adjusted from those published after the 1966 survey to conform to 1980 volumes because of changes in survey procedure and definitions.*

Table 1.--Net volume of growing stock in 1966 and 1980 by Forest Inventory Unit and Change Since 1966, Michigan

Forest Inventory Unit	1966 Growing-stock volume	1980 Growing-stock volume	Change since 1966
	Million cubic feet		Percent
Eastern Upper Peninsula	3,403	4,035	+19
Western Upper Peninsula	4,757	5,785	+22
Northern Lower Peninsula	4,945	6,825	+38
Southern Lower Peninsula	1,945	2,459	+26
Total	15,050	19,104	+27

Included in the growing stock volume are 47.7 billion board feet of sawtimber.[3] As with growing stock, hard maple leads other species groups in volume. We then find a slightly different order from growing stock for the other prominent sawtimber species, with the oak group second, pine third, and aspen and soft maple rounding out the top five:

Species group	Sawtimber (Million board feet)[4]
Hard maple	6,998
Oak	6,626
Pine	5,798
Aspen	5,303
Soft maple	4,813
Other hardwoods	9,983
Other softwoods	8,148
Total	47,669

The major concentrations of timber are found in the Upper Peninsula:

Forest inventory unit	Growing-stock volume	
	Softwoods	Hardwoods
	(Million cubic feet)	
Eastern Upper Peninsula	1,748	2,287
Western Upper Peninsula	1,729	4,056
Northern Lower Peninsula	1,707	5,118
Southern Lower Peninsula	172	2,287
Total	5,356	13,748

[3]*Net volume of the saw log portion of live sawtimber trees (softwoods 9.0 inches d.b.h. or larger and hardwoods 11.0 inches d.b.h. and larger) from the stump to a point in the central stem at which utilization for sawn products is limited by large branches, forks, or other defects, or by a diameter outside bark 7.0 inches for softwoods and 9.0 inches for hardwoods.*

[4]*International -inch rule.*

This area contains less than 30 percent of the State's land area but more than 50 percent of it's growing-stock volume. Marquette County, in the Upper Peninsula, has the most growing-stock and sawtimber volume of any county in the State (tables 2 and 3). Sugar maple and lowland conifers are well represented in this part of the State. The Northern Lower Peninsula Unit contains an additional 36 percent of the State's volume. This area contains more than 50

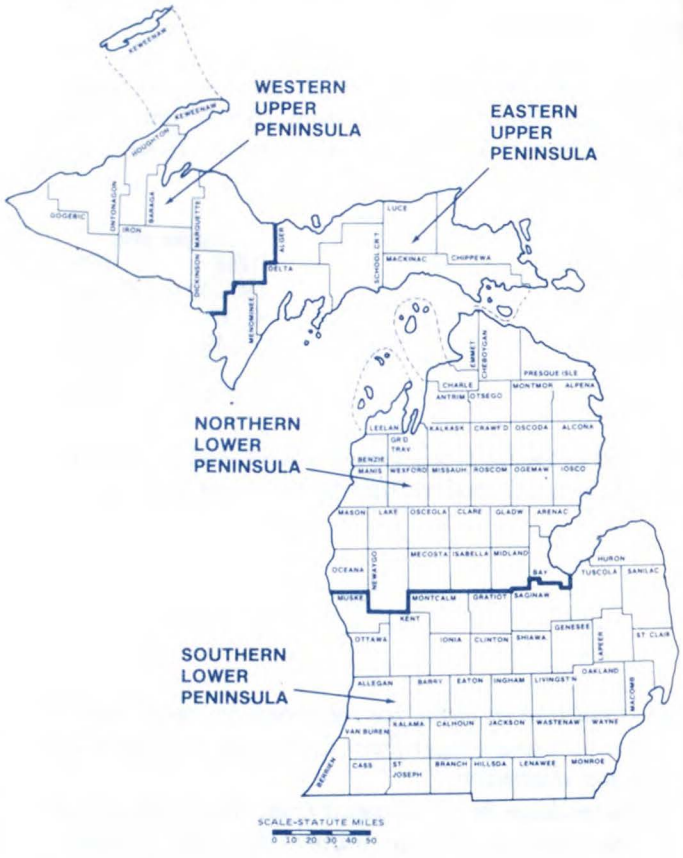

Figure 1.—*Michigan's four Forest Inventory Units.*

percent of the pine growing-stock volume and 57 percent of the oak growing-stock volume in the State.

The sampling error was ± 0.7 percent for the 19.1 billion cubic feet of growing stock material in the State.

This forest inventory was conducted by the North Central Forest Experiment Station. More intensified field sampling was made possible by additional funding and personnel provided the North Central Station by the State Legislature through the Michigan Department of Natural Resources and by interested forest industry companies.

Table 2.--Net volume of growing stock on commercial forest land by species groups1/ and county, Michigan, 1980

(In thousand cubic feet)

County	All species	Softwoods				Hardwoods				
		Pine	Spruce and balsam fir	Northern white cedar	Other softwoods	Oaks	Hard maple	Soft maple	Aspen	Other hardwoods
EASTERN UPPER PENINSULA										
Alger	633,168	47,540	60,111	56,335	39,262	72	154,397	105,298	20,542	149,611
Chippewa	741,628	113,460	126,471	77,642	17,923	6,765	75,681	75,844	109,544	138,298
Delta	595,253	65,627	109,432	81,695	22,391	1,996	49,016	62,394	81,602	121,100
Luce	509,662	80,999	63,782	64,408	32,522	819	69,793	83,532	37,394	76,413
Mackinac	591,900	45,185	108,453	82,242	14,533	1,733	70,754	51,146	86,173	131,681
Menominee	458,744	20,569	40,986	102,783	25,122	10,594	66,268	28,540	54,172	109,710
Schoolcraft	504,389	85,819	69,661	67,743	25,588	86	50,509	70,699	40,979	93,305
Total	4,034,744	459,199	578,896	532,848	177,341	22,065	536,418	477,453	430,406	820,118
WESTERN UPPER PENINSULA										
Baraga	719,048	21,646	82,015	43,425	62,996	3,190	209,963	112,115	46,468	137,230
Dickinson	383,517	14,604	64,692	40,428	6,425	4,423	58,492	13,579	71,733	109,141
Gogebic	763,990	20,404	97,623	40,629	53,263	6,710	199,816	60,607	96,173	188,765
Houghton	718,181	40,391	59,926	28,043	36,211	10,270	223,250	102,832	83,857	133,401
Iron	785,974	45,338	135,241	25,712	33,593	6,354	185,935	54,797	121,792	177,212
Keweenaw	292,375	14,254	40,931	49,271	671	17,007	62,350	38,908	19,423	49,560
Marquette	1,264,465	139,207	175,883	78,037	76,888	33,636	268,226	164,385	129,608	198,595
Ontonagon	857,481	36,354	93,327	24,504	46,737	4,255	196,678	81,286	178,447	195,893
Total	5,785,031	332,198	749,638	330,049	316,784	85,845	1,404,710	628,509	747,501	1,189,797
NORTHERN LOWER PENINSULA										
Alcona	313,422	40,462	13,155	16,470	1,183	88,518	7,547	28,078	58,774	59,235
Alpena	229,438	14,294	24,206	30,438	1,662	22,000	2,760	22,506	68,328	43,244
Antrim	204,488	1,861	4,526	10,369	6,025	--	60,526	20,066	34,591	66,524
Arenac	98,882	6,685	1,853	2,299	2,306	10,970	677	15,710	34,975	23,407
Bay	19,562	--	--	--	--	427	--	3,835	5,967	9,333
Benzie	143,591	9,391	779	2,960	6,706	978	47,710	23,314	13,112	38,641
Charlevoix	223,281	10,563	10,741	25,800	3,249	2,808	51,006	10,929	24,654	83,531
Cheboygan	366,166	39,281	28,795	40,998	5,380	12,666	50,720	22,792	81,759	83,775
Clare	198,788	30,218	1,872	9,898	1,814	54,814	1,838	31,427	47,939	18,968
Crawford	229,246	74,347	4,405	6,567	1,342	79,073	10,422	12,344	27,287	13,459
Emmet	256,988	3,249	9,408	12,099	5,102	5,729	77,468	16,725	56,687	70,521
Gladwin	161,384	8,749	1,053	1,184	199	17,458	0	26,163	77,030	29,548
Grand Traverse	164,917	30,698	184	11,306	7,483	20,109	18,654	21,552	36,134	18,797
Iosco	225,748	71,316	7,241	20,134	4,286	28,405	1,464	29,020	32,988	30,894
Isabella	71,290	801	113	4,716	4,750	13,547	530	11,909	24,449	10,475
Kalkaska	190,384	42,266	7,065	8,259	3,292	15,685	38,195	19,439	21,527	34,656
Lake	303,726	78,986	279	12,703	5,811	124,947	3,949	21,004	34,902	21,145
Leelanau	112,604	4,655	395	4,698	2,198	3,315	43,409	2,814	2,390	48,730
Manistee	244,928	32,801	363	6,884	3,340	49,935	41,325	49,949	21,847	38,484
Mason	152,245	18,830	278	4,153	4,634	49,681	6,870	24,836	29,207	13,756
Mecosta	104,234	8,326	938	5,043	3,230	11,495	6,226	12,095	33,967	22,914
Midland	135,485	8,308	--	--	1,234	21,020	211	29,714	48,921	26,077
Missaukee	185,718	16,998	4,046	10,824	4,355	26,936	19,964	32,510	40,245	29,840
Montmorency	229,593	37,289	9,494	14,493	4,604	39,815	18,556	24,287	40,390	40,665
Newaygo	326,936	56,204	358	5,210	7,099	129,375	8,743	49,776	33,858	36,313
Oceana	147,241	13,121	502	3,757	5,806	42,411	6,902	28,501	17,263	28,978
Ogemaw	226,851	22,487	4,600	14,254	404	47,173	5,415	23,790	69,022	39,706
Osceola	196,236	3,963	3,079	17,433	8,845	18,767	29,220	26,357	44,246	44,326
Oscoda	248,446	85,215	5,362	7,553	226	61,780	6,524	13,184	47,587	21,015
Otsego	286,118	41,242	11,361	12,226	1,922	12,777	78,851	18,681	35,522	73,536
Presque Isle	253,992	25,630	22,707	61,444	3,943	17,082	9,654	11,638	51,464	50,430
Roscommon	305,689	51,511	8,558	32,523	1,292	96,221	1,442	31,818	56,411	25,913
Wexford	267,049	75,429	2,860	14,421	6,461	26,890	36,206	31,592	31,139	42,051
Total	6,824,666	965,176	190,576	431,116	120,183	1,152,807	692,984	748,355	1,284,582	1,238,887

(Table 2 continued on next page)

(Table 2 continued)

SOUTHERN LOWER PENINSULA

County	All Species	Softwoods				Hardwoods				
		Pine	Spruce and balsam fir	Northern white cedar	Other softwoods	Oaks	Hard maple	Soft maple	Aspen	Other hardwoods
Allegan	160,301	27,845	--	--	5,245	56,637	1,542	21,681	6,970	40,381
Barry	147,582	3,697	1,082	--	1,009	60,818	17,838	21,122	2,539	39,477
Berrien	84,356	--	--	--	--	10,467	12,285	10,411	1,507	49,686
Branch	55,938	--	--	--	198	9,803	1,329	22,115	1,327	21,176
Calhoun	85,534	1,142	--	--	679	13,569	1,143	17,244	2,036	49,721
Cass	68,751	--	--	--	1,138	10,587	1,665	17,254	1,310	36,797
Clinton	19,817	--	--	--	--	4,507	538	5,533	1,009	8,230
Eaton	41,076	--	--	--	389	3,858	4,601	5,318	414	26,496
Genesee	37,485	--	--	--	--	10,648	4,558	7,753	886	13,640
Gratiot	29,548	1,168	--	--	--	11,819	1,190	7,814	2,247	5,310
Hillsdale	19,791	--	--	--	--	2,246	5,088	1,657	0	10,800
Huron	37,011	--	--	--	233	--	--	1,921	12,350	22,507
Ingham	44,819	135	166	--	--	8,636	3,378	4,774	3,810	23,920
Ionia	26,429	--	--	--	267	6,761	1,249	3,353	2,522	12,277
Jackson	95,732	--	--	--	205	43,985	--	6,930	3,619	40,993
Kalamazoo	47,733	5,412	256	--	5,966	8,737	308	7,611	3,483	15,960
Kent	117,307	1,375	--	--	1,043	50,336	9,246	24,980	5,924	24,403
Lapeer	64,384	2,637	185	--	206	19,783	6,901	11,551	3,315	19,806
Lenawee	44,036	--	--	--	--	8,229	6,598	5,462	1,691	22,056
Livingston	71,575	4,290	--	--	2,479	38,829	--	10,413	1,639	13,925
Macomb	26,901	--	--	662	810	970	3,560	11,309	189	9,401
Monroe	45,275	--	--	--	--	18,170	1,919	4,325	0	20,861
Montcalm	147,371	16,691	--	161	2,246	52,569	1,499	24,139	18,177	31,889
Muskegon	160,911	36,428	--	21	3,501	71,253	662	24,178	13,447	11,421
Oakland	62,889	730	--	--	--	31,024	827	6,571	2,592	21,145
Ottawa	93,034	12,384	--	--	8,220	22,358	3,544	21,360	1,594	23,574
Saginaw	60,154	1,222	--	--	142	21,155	2,739	8,129	8,045	18,722
St. Clair	91,786	7,713	--	--	1,236	27,420	5,114	7,622	3,654	39,027
St. Joseph	74,003	322	214	--	169	19,696	973	10,666	8,332	33,631
Sanilac	21,859	--	--	--	--	542	--	1,758	8,775	10,784
Shiawassee	72,960	--	--	--	--	23,823	2,543	12,426	2,724	31,444
Tuscola	77,239	1,012	--	3,085	330	4,294	5,406	19,149	23,076	20,887
Van Buren	99,113	4,801	--	--	261	22,177	5,117	19,675	2,778	44,304
Washtenaw	83,489	--	--	--	797	41,533	996	7,068	1,911	31,184
Wayne	43,170	--	--	--	--	20,906	304	5,163	1,011	15,786
Total	2,459,359	129,004	1,903	3,929	36,759	758,145	114,660	398,435	154,903	861,621
State Total	19,103,800	1,885,577	1,521,013	1,297,942	651,067	2,018,862	2,748,772	2,252,752	2,617,392	4,110,423

1/ Species groups: other softwoods - primarily hemlock and tamarack; hard maple - sugar maple and black maple; soft maple - red maple and silver maple; other hardwoods - primarily hickory, yellow birch, beech, ash, balsam poplar, cottonwood, basswood, black walnut, black cherry, butternut, elm, and paper birch.

Table 3.--Net volume of sawtimber on commercial forest land by species groups[1/] and county, Michigan, 1980

(In thousand board feet)[2/]

County	All Species	Softwoods				Hardwoods				
		Pine	Spruce and balsam fir	Northern white-cedar	Other softwoods	Oaks	Hard maple	Soft maple	Aspen	Other hardwoods
EASTERN UPPER PENINSULA										
Alger	1,888,985	171,606	121,978	153,667	201,655	--	452,443	234,842	47,845	504,949
Chippewa	1,659,894	281,372	224,959	158,395	75,491	22,147	162,544	166,851	223,007	345,128
Delta	1,134,546	182,729	192,669	113,780	85,011	8,531	116,505	76,781	108,284	250,256
Luce	1,466,285	307,316	105,318	177,581	148,731	546	223,358	194,900	75,217	233,318
Mackinac	1,240,067	159,628	210,043	132,121	53,326	2,236	177,115	85,204	148,235	272,159
Menominee	833,200	93,829	56,996	150,605	64,384	32,908	109,642	47,813	75,277	201,746
Schoolcraft	1,172,230	297,223	108,744	110,131	101,337	--	124,729	140,652	72,584	216,830
Total	9,395,207	1,493,703	1,020,707	996,280	729,935	66,368	1,366,336	947,043	750,449	2,024,386
WESTERN UPPER PENINSULA										
Baraga	2,253,770	89,154	170,599	163,114	320,593	9,741	700,785	264,384	124,313	411,087
Dickinson	698,953	62,812	103,940	69,513	10,092	18,140	67,583	12,024	123,693	231,156
Gogebic	1,926,524	57,673	190,692	136,366	254,132	20,201	535,635	108,544	202,912	420,369
Houghton	1,995,226	135,297	131,417	101,157	176,776	41,763	664,036	198,769	221,092	324,919
Iron	1,957,638	193,451	278,680	77,832	146,210	20,918	499,633	115,743	251,532	373,639
Keweenaw	830,853	73,835	97,469	155,233	2,570	70,995	171,170	87,305	46,280	125,996
Marquette	3,406,308	601,269	326,287	204,497	366,886	105,533	781,680	266,336	265,560	488,260
Ontonagon	2,176,940	123,108	210,503	86,665	228,793	14,933	589,364	115,604	367,393	440,577
Total	15,246,212	1,336,599	1,509,587	994,377	1,506,052	302,224	4,009,886	1,168,709	1,602,775	2,816,003
NORTHERN LOWER PENINSULA										
Alcona	727,582	142,193	29,762	30,900	5,833	204,917	11,070	55,391	122,631	124,885
Alpena	492,107	57,617	52,600	57,222	4,459	51,746	3,921	45,207	155,184	64,151
Antrim	377,697	8,477	10,577	26,988	21,314	--	88,241	36,428	70,692	114,980
Arenac	199,998	17,707	--	691	2,507	29,977	--	28,175	70,913	50,028
Bay	46,778	--	--	--	--	1,845	--	10,030	14,286	20,617
Benzie	328,817	1,255	--	7,372	19,521	3,756	94,680	44,233	29,987	128,013
Charlevoix	508,496	41,698	19,850	30,721	9,373	11,494	97,973	19,884	87,645	189,858
Cheboygan	732,066	130,777	57,050	60,703	17,418	33,773	48,252	24,600	191,647	167,846
Clare	471,667	67,713	1,453	12,365	5,677	189,492	7,863	49,525	104,096	33,483
Crawford	413,157	195,389	3,834	2,834	6,727	131,191	7,858	4,482	31,319	29,523
Emmet	540,251	8,732	14,337	11,168	14,947	22,032	101,823	16,063	173,728	177,421
Gladwin	329,985	38,721	2,287	2,029	1,074	41,230	--	23,532	180,268	40,844
Grand Traverse	402,688	72,564	--	15,929	17,073	64,670	48,298	49,256	86,919	47,979
Iosco	488,497	170,730	14,932	31,517	20,107	47,785	4,944	61,470	71,113	65,899
Isabella	164,022	2,347	--	3,784	10,434	59,425	1,993	33,275	35,575	17,189
Kalkaska	368,373	112,243	9,748	14,438	6,400	43,997	52,453	23,615	37,899	67,580
Lake	677,970	161,110	--	10,070	6,061	354,939	6,484	26,172	64,503	48,631
Leelanau	334,699	12,647	--	5,051	8,263	15,594	94,814	12,742	7,168	178,420
Manistee	678,216	58,298	--	10,023	8,217	155,141	133,061	156,115	40,566	116,795
Mason	371,064	36,983	--	8,681	8,105	151,874	21,550	74,479	38,601	30,791
Mecosta	255,640	28,469	--	6,551	11,817	47,043	26,285	24,648	76,658	34,169
Midland	317,391	35,636	--	--	5,598	73,929	--	81,598	72,906	47,724
Missaukee	408,816	55,450	6,506	24,512	5,700	103,854	28,855	59,171	66,033	58,735
Montmorency	456,718	111,503	16,412	14,613	5,944	102,817	20,445	21,866	90,239	72,879
Newaygo	869,882	119,322	--	9,388	15,277	412,525	21,731	139,175	53,951	98,513
Oceana	384,521	29,661	--	4,040	13,835	147,203	15,787	76,242	29,552	68,201
Ogemaw	402,505	47,198	5,572	17,659	1,223	88,262	3,256	38,680	141,617	59,038
Osceola	562,103	14,854	3,774	34,045	37,301	63,417	79,125	56,062	147,669	125,856
Oscoda	563,867	242,294	8,969	14,690	749	155,227	6,518	16,373	78,714	40,333
Otsego	564,076	140,038	15,044	18,541	10,378	41,845	89,465	23,082	67,062	158,621
Presque Isle	451,144	77,895	35,563	99,105	8,149	38,859	12,363	13,502	89,192	76,516
Roscommon	680,326	195,916	6,135	51,881	1,967	220,516	--	43,345	124,846	35,720
Wexford	511,063	114,529	1,067	15,695	9,330	109,610	59,467	61,654	52,297	87,414
Total	15,082,182	2,549,966	315,472	653,206	320,778	3,219,985	1,188,575	1,450,072	2,705,476	2,678,652

(Table 3 continued on next page)

(Table 3 continued)

SOUTHERN LOWER PENINSULA

County	All Species	Softwoods				Hardwoods				
		Pine	Spruce and balsam fir	Northern white-cedar	Other softwoods	Oaks	Hard maple	Soft maple	Aspen	Other hardwoods
Allegan	492,180	71,134	--	--	4,995	195,853	6,499	78,264	10,011	125,424
Barry	537,729	9,830	538	--	2,175	264,323	79,424	65,286	1,891	114,262
Berrien	275,389	--	--	--	--	35,117	32,882	24,298	1,642	181,450
Branch	181,734	--	--	--	872	44,207	3,160	76,340	3,163	53,992
Calhoun	305,140	1,547	--	--	1,522	69,475	3,129	55,811	3,680	169,976
Cass	236,371	--	--	--	--	49,622	6,470	73,364	--	106,915
Clinton	50,482	--	--	--	--	16,550	1,133	14,242	1,611	16,946
Eaton	109,286	--	--	--	--	15,065	13,264	22,617	2,601	55,739
Genesee	131,120	--	--	--	--	43,238	23,107	34,137	--	30,638
Gratiot	103,047	2,707	--	--	--	38,753	4,106	33,015	4,938	19,528
Hillsdale	70,940	--	--	--	--	11,837	26,994	3,665	--	28,444
Huron	86,377	--	--	--	--	--	--	1,893	20,950	63,534
Ingham	149,933	660	--	--	--	36,616	16,107	15,669	13,493	67,388
Ionia	90,927	--	--	--	--	35,127	3,557	11,983	3,894	36,366
Jackson	339,305	--	--	--	--	199,038	--	28,562	11,238	100,467
Kalamazoo	149,446	22,306	--	--	12,243	37,892	--	27,789	7,605	41,611
Kent	312,539	6,011	--	--	1,070	165,445	35,213	49,936	--	54,864
Lapeer	175,221	950	708	--	--	74,567	20,877	37,123	1,403	39,593
Lenawee	158,283	--	--	--	--	42,055	28,687	11,064	6,305	70,172
Livingston	266,465	10,032	--	--	8,070	172,238	--	32,138	4,227	39,760
Macomb	97,340	--	--	--	3,799	2,828	16,422	39,432	--	34,859
Monroe	167,546	--	--	--	--	82,093	12,271	22,239	--	50,943
Montcalm	392,071	55,673	--	212	5,166	167,569	1,595	58,336	29,508	74,012
Muskegon	476,093	132,499	--	26	19,116	212,241	4	71,006	21,253	19,948
Oakland	251,416	2,605	--	--	--	148,702	3,061	28,203	--	68,845
Ottawa	321,864	32,461	--	--	30,273	79,066	13,198	70,418	--	96,448
Saginaw	148,425	6,564	--	--	--	78,557	13,258	17,463	6,654	25,929
St. Clair	313,859	41,363	--	--	2,914	101,224	14,148	27,726	1,351	125,133
St. Joseph	283,981	1,730	--	--	--	94,407	--	42,052	24,724	121,068
Sanilac	41,492	--	--	--	--	1,244	--	6,703	14,555	18,990
Shiawassee	250,082	--	--	--	--	92,834	7,722	45,559	10,594	93,373
Tuscola	178,462	6,152	--	4,461	--	20,276	17,186	49,535	32,672	48,180
Van Buren	293,169	13,485	--	--	--	86,559	24,205	43,387	2,022	123,511
Washtenaw	341,725	--	--	--	2,988	220,826	3,723	18,544	1,762	93,882
Wayne	166,096	--	--	--	--	101,604	1,663	9,602	957	52,270
Total	7,945,535	417,709	1,246	4,699	95,203	3,037,048	433,065	1,247,401	244,704	2,464,460
State Total	47,669,136	5,797,977	2,847,012	2,648,562	2,651,968	6,625,625	6,997,862	4,813,225	5,303,404	9,983,501

1/ Species groups: other softwoods - primarily hemlock and tamarack; hard maple - sugar maple and black maple; soft maple - red maple and silver maple; other hardwoods - primarily hickory, yellow birch, beech, ash, balsam poplar, cottonwood, basswood, black walnut, black cherry, butternut, elm, and paper birch.

2/ International 1/4-inch rule.

U.S. GOVERNMENT PRINTING OFFICE:1982-665-443/155